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Migration, Poverty, and Inequality

Evidence from Burkina Faso

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ABSTRACT

This paper applies Gini and concentration coefficient decomposition as well as the Foster-Greer-Thorbecke poverty index and a welfare function to new data from Burkina Faso to test the relationship between long-distance international migration and internal migration within the African continent and inequality, poverty, and social welfare in rural households. Findings support our theoretical expectation that this relationship varies by migrant destination. We find evidence of a negative correlation between internal migration and inequality and a positive correlation between international migration and inequality**.** International migration, which involves high costs and risks, appears to be mainly accessible to already wealthy households. Comparatively high remittances from this form of migration are associated with greater inequality. We also find that although international migration is associated with a much lower incidence, depth, and severity of poverty, its impact on social welfare is limited because the beneficiaries of international migration do not include the rural poor.

Keywords: international migration, internal migration, rural households, West Africa

1. INTRODUCTION

Migration has been identified as a pathway out of poverty for rural households in developing countries because it provides households with a source of income uncorrelated with agricultural income and reduces consumption pressure (World Bank, 2007). Recent research suggests that household members who migrate can facilitate investments in new activities by providing rural households with liquidity, in the form of remittances, as well as income security, in the form of a promise to remit in the event of an adverse income shock. That is, migration can reduce poverty by enabling rural households to overcome imperfect credit and insurance markets. However, the beneficiaries of migration may not include the rural poor. It has been suggested that more risky and costly long-distance international migration, which is also the most lucrative in terms of remittances, is most accessible, at least initially, for the wealthiest of the rural population. If this hypothesis is correct, the presence of a long-distance migrant in a particular household may well be associated with a lower level of poverty in that household, but also with greater interhousehold income inequality when compared with nonmigrant and internal migrant households.

The relationship between migrant remittances and income inequality in developing countries has been the focus of considerable economic research, and linkages between migration, remittances, and poverty—long ignored in the development economics literature—have recently been explored. However, until now not much has been written on Africa (notable exceptions include Azam and Gubert [2006], Wouterse and Taylor [2008], and Mesnard [2004]), and findings concerning the relationship between migration, inequality, and poverty have often been contradictory, partly due to a lack of differentiation between the various forms of migration. Although the different contributions to the sending economies made by migrants to destinations outside the African continent and migrants within the African continent are increasingly recognized, studies that address this distinction in their analyses of the relationship between migration, inequality, and poverty are rare in general, and virtually nonexistent for Sub-Saharan Africa.

This study uses econometric methods and new data from Burkina Faso to explore the relationship between migration, poverty, and inequality. The analysis is based upon unique new data collected by the author in a 2003 survey of 223 households in four villages situated on the Central Plateau of Burkina Faso. Burkina Faso, a country where conditions for agriculture are far from favorable, has a long history of migratory movement. In West Africa, the distinction between internal and international migration is often blurred by a close cultural affinity between homogeneous peoples on opposite sides of national borders—which leads migrants to regard intraregional migration merely as an extension of internal movement (Adepoju, 2007). To allow for comparability of results, following Adams on Pakistan (1998), De la Briere, Sadoulet, De Janvry, and Lambert (2002) on the Dominican Republic; and Mora and Taylor (2006) on Mexico, when analyzing migration impacts I make a distinction between long-distance international migration and internal migration within the African continent.

I test separately the effects of internal and long-distance international migration on poverty, interhousehold inequality, and welfare using Gini and concentration coefficient decomposition, the Foster-Greer-Thorbecke poverty index, and the Stark-Yitzhaki welfare index. Results show that long-distance international migration is associated with higher village income inequality, while the opposite holds for internal migration. Long-distance international migration is associated with much lower incidence, depth, and severity of poverty. However, the lack of diffusion of international migration among poorer households limits its potential for poverty reduction and welfare improvement.

We begin by presenting, in Part 2, a discussion of empirical work on the relationship between migration, inequality, and poverty, including the diffusion hypothesis, which may partly explain the negative association between international migration and poverty encountered in the literature. Part 3 describes the study area and data. Part 4 presents our methodology, including the Gini and concentration coefficient decomposition, poverty measures, and social welfare function used to explore the relationship between internal and international migration, inequality, and poverty. It provides the conceptual basis for the empirical analysis. Part 5 reports our findings on the relationship between migration, inequality, and poverty. We conclude in Part 6 by discussing some of the implications of our findings for understanding the influences of migration on income inequality and poverty in source areas.

2. RESEARCH ON REMITTANCES, INEQUALITY, AND POVERTY

The interactions between migration, poverty, and changes in income distribution are of primary interest to researchers and policymakers, and have been well studied in the past (e.g., Lipton [1980]; Stark, Taylor, and Yitzhaki [1986]; and De Haan [1999]). Adams and Page (2005) use cross-section data from 71 developing countries to show, after instrumenting for the possible endogeneity of international migration and controlling for various factors, that remittances from international migration are associated with a much lower level, depth, and severity of poverty in the developing world. In rural Egypt, for example, the number of poor households was found to decline by 9.8 percent when predicted per capita household income included international remittances (Adams, 1986). For Burkina Faso, Lachaud (1999) demonstrated that the percentage of the population living below the poverty line was reduced by 7.2 percent in rural households as a result of international remittances from Côte d'Ivoire.

A number of studies have investigated the distributional effects of migrant remittances by using income-source Gini decompositions. Adams, for example, in his study on rural Egypt (1989; 1991), found that international remittances made only a very small contribution to overall income inequality. Others have compared Gini coefficients with and without migrant remittances. Oberai and Singh (1980), for example, found for the Indian Punjab that urban-to-rural remittances widened the gap between rich and poor in the rural areas. For Kenya, Knowles and Anker (1981) found that urban-to-rural remittances had very little effect on the overall distribution of income. Barham and Boucher (1998) found for Nicaragua that migration and remittances increased income inequality when compared with the no-migration counterfactual, but they did not distinguish between different destination of migrants.

Most of the studies mentioned above confined the analysis of the impact of migration on inequality and poverty to remittances. There are theoretical reasons to suppose that the direct impact of migrant remittances does not represent the full impact of remittances on income inequality and poverty. New Economics of Labor Migration (NELM) suspects that the effects of migration on activity choice and income in an incomplete market environment may be important. Household members who migrate may enable households to overcome imperfect credit and insurance markets and stimulate diversification into nonfarm activities by remitting (Stark, 1991). Migration may also compete with other household activities for scarce family resources, including time. However, whereas migrants' net remittances are not likely to represent the full effect of migration on village income inequalities and poverty, they do constitute perhaps the most important direct impact of migration on village household incomes, are relatively easily measured, and are a logical and useful starting point for understanding the distributional consequences of migration for migrant sending areas (Stark, Taylor, & Yitzhaki, 1988).

The impacts of migration and remittances may be different for different migrant destinations. Two migrant destinations must be distinguished when studying the impact of migration in West Africa: international migration to Europe and internal migration within the African continent. Migration to distant labor markets generates large amounts of remittances but usually entails a relatively long-term loss of labor and high costs, particularly in the form of transport, and risks associated with border crossing, often attempted without documents. Internal migration is less costly but generates comparatively few remittances.[1] Internal migration is expected to involve poorer households, which engage in migration at a low cost as a survival strategy in response to income shortfalls. Given the higher costs and risks, migration to international destinations is postulated to be an accumulation strategy involving households at the upper middle or top of the sending area's income distribution. If only relatively wealthy households are able to engage in migration, remittance income from these migrants would accrue to the already better-off and would increase income inequality in the source area. If richer households gain both absolutely and relatively more from migration and remittances than do poorer households, then, despite sizable remittances, the role of international migration in poverty alleviation and welfare improvements may be limited.

1 There are only a limited number of observations on the costs of migration. Households spent about 200,000 FCFA (West African Franc) per international migrant and between 3,000 and 7,000 FCFA per internal migrant.

3. DATA

Data used to test the association of internal and international migration with interhousehold inequality and poverty are from a household survey conducted in four villages in Burkina Faso in February and March 2003. The four villages are situated on the Central Plateau—Niaogho and Béguédo in the south and Boussouma and Korsimoro in the north. The Central Plateau constitutes the central region of Burkina Faso, where the intensity of soil use is high compared with other regions. High population density is said to have led to a saturation of space in this region, and lands on the Central Plateau are generally overexploited and degraded (Brasselle, Gaspart, & Platteau, 2002; Breusers, 2001; Reyna, 1987).

Households were selected as randomly as possible in the absence of any preexisting census maps. After mapping a village, each enumerator was sent out in a different direction to select households at an equal distance from one another, ensuring that all peripheral areas were covered. Farm households in the four villages can generally be described as extended, as, in a polygamous setting, they often comprise not only the household head and his wives, but also their grown sons along with their wives and children. Family members were included in the extended household definition on the basis of living in the same compound and normally eating meals together.

Agriculture (staple cropping, cash cropping, and livestock) is the primary activity of the households. Cropping is characterized by a single short cropping season per year. Labor productivity tends to be low. There is a general lack of irrigation, rainfall is low, and soils are generally poor (Kessler & Geerling, 1994). The consequence of engaging in rainfed agriculture in a drought-prone environment is that households face substantial risk. Formal crop insurance is not available to mitigate this risk in the West African semi-arid tropics (WASAT). The lack of such insurance is thought to be due to the high spatial covariance of rainfall shocks and to moral hazard problems associated with crop insurance in general (Reardon, Delgado, & Matlon, 1992).

The lack of collateral is compounded by the absence of a land market. In rural Africa, land markets often barely function and are generally quite thin (Lanjouw, Quizon, & Sparrow, 2001). In Burkina Faso, commercial land market transactions were found to be extremely rare (Ouedraogo, Sawadogo, Stamm, & Thiombiano, 1996). Udry (1999), using a four-year panel study (ICRISAT) of households in three different agroclimatic zones of Burkina Faso, found evidence for a missing land market when testing for profit maximization in agriculture. In the study villages, where high population density has led to land scarcity (Kessler & Geerling, 1994), not a single land transaction was recorded in the data. The lack of commercial land market transactions implies that land cannot function as collateral for credit.

Uncertainty combined with a lack of markets for risk creates incentives to diversify income-generating activities. Diversification of activities enables a household to reduce the risk it faces by generating income from sources not correlated with cropping income. Specific characteristics of the WASAT include a scarcity of low-barrier-to-entry labor-intensive jobs due to an underdeveloped farm labor market and predominantly traditional production technologies using family inputs (Reardon & Taylor, 1996). Households in the study area diversify their income by engaging in migration, livestock production, and nonfarm activities.

Poor WASAT households appear to face important entry barriers to capital-intensive subsectors (Reardon & Taylor, 1996). If, as is widely believed, risk aversion decreases with income and wealth, then the poor will display a greater demand for diversification, other things being equal (Barrett, Reardon, & Webb, 2001). However, if diversification is costly (i.e., has high entry barriers) and initially risky, wealthy households are likely to be in a better position to diversify into noncrop activities.

In agrarian societies, the major form of wealth is land. In the absence of a land market, landholdings are a more suitable indicator than income for assessing the ability of households to diversify. Table 1 shows income composition and participation across landholding quintiles. Consistent with agricultural household theory (e.g., Singh, Squire, and Strauss [1986]), net income from each household production activity was calculated as total revenue minus the costs of purchased inputs. For

crop production this includes the value of subsistence output, using the average local price received by sellers of the crop. The livestock income calculation takes into account the net change in value of herds as well as the sale of animal products.

Table 1. Income composition across landholding quintiles (2002)

Quintile	***Income per capita*** (FCFA)[a]	***Staple cropping***	***Cash cropping***	***Live-stock***	***Non-farm activities***	***Remittances*** internal	***Remittances*** international
Lowest	35,387	49 (100)[b]	8 (53)	6 (36)	31 (62)	6 (51)	0 (0)
Second	46,527	52 (100)	9 (56)	4 (51)	22 (71)	8 (56)	6 (13)
Third	41,492	56 (100)	12 (68)	7 (64)	18 (64)	4 (50)	4 (14)
Fourth	52,084	51 (100)	10 (64)	7 (53)	16 (53)	7 (47)	10 (20)
Highest	66,337	53 (100)	10 (75)	6 (75)	17 (68)	2 (48)	12 (25)

Source: Author's survey
Notes: Migrants are not included as household members.
[a] 168 FCFA=$1 (PPP 2002) (World Bank, 2005)
[b] The figures in parentheses are the percentage of households in the income quintile that participated in the respective activity.

The village surveys revealed two principal types of migrant destination: internal and long-distance to Europe. Households from all four villages engage in internal migration. Households in Niaogho and Béguédo also participate in migration to Europe. Internal migrants are generally young men who attempt to find work elsewhere on the African continent. The primary destination of internal migrants from the surveyed villages until recently was Côte d'Ivoire. However, the migrant flow to Côte d'Ivoire has all but ceased, due to the unstable political situation, ethnic tensions, and antiforeigner sentiment there. Many Burkinabe now migrate to the capital of their country, Ouagadougou. International migration to Europe from Niaogho and Béguédo in nearly all cases is comprised of young (Bissa) males who go to Italy, initially to engage in horticulture around Naples. This form of migration is highly lucrative in terms of remittances sent back to the household; however, it involves high entry costs, particularly for transportation.

Migration, by providing households with a source of income that is uncorrelated with agriculture, can facilitate investments in other activities. However, migration itself represents a diversification strategy with costs and risks that are greater for international migration. Because of this, it is likely that only comparatively wealthy households (at least initially) are able to engage in this form of migration. Table 1 shows that household participation in internal migration is prominent in the households that are poorest in terms of land, whereas long-distance international migration is most common among households in the upper land quintiles.

Households in the four villages can be grouped on the basis of their migration status: nonmigrant, internal migrant, and long-distance international migrant.[2] An overview of the endogenous income and participation variables by household migration status (nonmigrant, internal, and international) is given in Table 2.

2 Within the group of internal migrants, a t-test reveals that remittances of migrants within and outside Burkina Faso (but within Africa) do not differ significantly, supporting the merging of these forms of migration into one group.

Table 2. Income per capita from different activities by household migration status (2002)

	Mean net income (FCFA)[a]		
	Nonmigrant (N=79)	***Internal (N=112)***	***International (N=32)***
Total income	42,621	47,060	67,803
Staple cropping	24,420 (100)[b]	26,219 (100)	22,168 (100)
Cash cropping	4,940 (66)	4,604 (64)	6,031 (88)
Livestock	2,710 (37)	2,327 (57)	4,313 (97)
Nonfarm activities	10,551 (61)	9,024 (72)	7,779 (41)
Remittances	~	4,886	27,512

Notes: Migrants are not included as household members.
[a] 168 FCFA=$1 (PPP 2002) (World Bank, 2005)
[b] The figures in parentheses are the percentage of households in the income quintile that participated in the respective activity.

The three household groups display differences in both per capita income and activity mixes. Remittance income of households with international migrants is about six times that of internal migrant households. Almost all households with international migration own livestock, but participation in livestock production is much lower for households without migrants and those with internal migrants. Participation rates in nonfarm activities are lower among households with international migrants than among the other two groups.

4. METHODOLOGY

Four types of analyses will be carried out to shed light on the relationship between remittances from internal and international migration and income inequality and poverty. We first use income data to construct a Gini and concentration coefficient decomposition. A modification of the Foster-Greer-Thorbecke (1984) poverty index is then used to analyze the poverty implications of remittances. We follow Taylor, Mora, Adams, and Lopez-Feldman (2005) and others in their analysis of migration and poverty in Mexican rural households and take into account the incidence, depth, and severity of poverty. Finally, we use the Stark-Yitzhaki welfare index to assess the relationship between migration and social welfare.

Migration and Inequality

To explore the correlation between remittances from internal and international migration and rural income inequality, we need to select an inequality index. Although various indices exist, the Gini is probably the most intuitive and allows for decomposition by income source (Taylor et al., 2005). If we let $y = (y_1, \ldots . y_I)$ represent I components of household income, and if we define total income as $Y = \sum_{i=1}^{I} y_i$, we can write the extended Gini coefficient for village incomes as a function of the covariance between income and its cumulative distribution:

$$G_Y = \frac{2cov[Y, F(Y)]}{\bar{Y}} \tag{1}$$

where $\bar{Y}$ is the mean of total income Y and $F(Y)$ is the cumulative distribution of total incomes in the village. If we utilize the properties of covariance, we can write equation (1) as

$$G_Y = \frac{2\sum_{i=1}^{I} cov[y_i, F(Y)]}{\bar{Y}} = \sum_{i=1}^{I} R_i G_i S_i \tag{2}$$

In equation (2), S_i is the share of income from source i in total income, $S_i = \bar{y}_i/\bar{Y}$ and R_i is the Gini correlation of income from source i with the distribution of total income, and G_i is the Gini index corresponding to the distribution of income from source i.[3]

$$R_i = \frac{cov[y_i, F(Y)]}{cov[y_i, F(y_i]} \tag{3}$$

Equation (2) enables us to decompose the role of remittances in inequality into three terms: first, the magnitude of remittances relative to total income; second, the inequality of remittances; and third, the correlation of remittances with total income (Stark et al., 1986). We can then calculate the effect of a small percentage change in any one component on the Gini of total income. Taking household labor and production decisions as given, if we increase an income source j by a factor e such that $y_j(e) = (1 + e)y_j$, the marginal effect on the Gini of total income is

$$\frac{\partial G_Y}{\partial e} = S_j\left(R_j G_j - G_Y\right) \tag{4}$$

where S_j, R_j, G_j and G_Y are measured prior to the marginal income change, and the relative effect is given by

$$\frac{\partial G_Y/\partial e}{G_Y} = \frac{S_j G_j R_j}{G_Y} - S_j \tag{5}$$

3 Properties of the Gini correlation are discussed in, among others, Stark et al. (1988).

If remittances play a role in village income, then if R_j, the Gini correlation between remittances and total income, is negative or zero, an increase in remittances would decrease inequality; if R_j, however, is positive, then the impact of an increase in remittances on inequality depends on the sign of $R_j G_j - G_Y$. Inequality will increase if the inequality of remittances exceeds the inequality of total household income: $G_j > G_Y$ (Stark et al., 1986).

The Gini coefficient decomposition is useful for examining the effects of different sources of income on overall income inequality. However, it cannot be used to examine whether income from different sources can affect income inequality arising from differences in landholdings (Leones & Feldman, 1998). For example, if remittance income contributes to greater overall income inequality, and international migration is prominent among already wealthy households, international migration may thus further inequality that arises between households because of differences in landholdings. The concentration coefficient for income source i may be written as:

$$C_i = 1 - 2\int_0^{\infty} F_1\,[g(Y)]f(Y)dY \tag{6}$$

where Y is income, as defined before, $F_1[g(Y)]$ is the cumulative distribution function for function $g(Y)$, which is a continuous function of Y and everywhere greater or equal to zero and for which a first derivative exists (Kakwani, 1977). An alternative formulation for the concentration coefficients is given by:

$$C_i = 1 - 0.1(19q_1 + 17q_2 + 15q_3 + 13q_4 + 11q_5 + 9q_6 + 7q_7 + 5q_8 + 3q_9 + 1q_{10}) \tag{7}$$

where the q_i are the shares of income for each source that accrue to each decile. Deciles may be based on household rankings by, for example, income or landholding. The concentration coefficient for total income is the sum of the concentration coefficient for each income source times its share of total income or $C_Y = \sum_i (S_i C_i)$, where S_i represents the share of income source i in total income. Taking household labor and production decisions as given, we can assess the impact of an exogenous change in each household's income component j by a factor of e, such that $y_j(e) = (1 + e)y_j$. The concentration elasticity may be calculated as:

$$\frac{\partial C_Y / \partial e}{C_Y} = \left[\frac{(S_j C_j)}{C_Y}\right] - S_j \tag{8}$$

Migration and Poverty

To analyze the poverty implications of migration and remittances, a modification of the Foster-Greer-Thorbecke (FGT) poverty index can be used. If we let $y = (y_1, y_2, \ldots y_K)$ represent household income in increasing order and $z > 0$ denote the predetermined poverty line, the FGT poverty measure is defined by:

$$P(y; z) = \frac{1}{nz^{\alpha}} \sum_{k=1}^{q} g_k^{\alpha} \tag{9}$$

where n is the total number of households, $q = q(y; z)$ is the number of poor households, $g_k = z - y_k$ is the income shortfall (the gap between the household's income and the poverty line) of the k-th (poor) household, and α is a parameter. This index satisfies the two axioms formulated by Sen (1976; 1979) for poverty measures and confirms (1) that a reduction in the income of a poor household, ceteris paribus,

increases the poverty measure (monotonicity); and (2) that a pure transfer of income away from a poor household increases the poverty measure (the transfer axiom).

Three variants of the FGT poverty index are used to estimate the impacts of changes in migration on rural poverty: the head-count measure $\alpha = 0, P_H(y;z) = \frac{q}{n}$ measures the incidence of changes in migration on rural poverty (i.e., the share of the population living below the poverty line); the poverty gap $\alpha = 1, P_G(y;z) = \frac{1}{nz}\sum_{k=1}^{q} z - y_k$ measures the depth of poverty, or how far below the poverty line the average poor household's income falls; and finally, the squared poverty gap $\alpha = 2, P_{SG}(y;z) = \frac{1}{nz^2}\sum_{k=1}^{q}(z - y_k)^2$ measures the severity of poverty and is sensitive to changes in the distribution of income among the poor (Taylor et al., 2005).

Migration and Social Welfare

Changes in inequality do not have unambiguous implications with regard to social welfare. To assess the relationship between migration and social welfare, we use a social welfare function invoking direct welfare judgement as proposed by Stark and Yitzhaki (1982).

$$W = \bar{Y}(1 - G_Y) \tag{10}$$

where $\bar{Y}$ is mean village income, as defined before. Using this measure of social welfare, we can assess the impact of a small percentage change in income from source j on village welfare by a factor of e, such that $y_j(e) = (1 + e)y_j$, that is

$$\frac{\partial W/\partial e = (\partial \bar{Y}/\partial e)(1 - G_Y) - \bar{Y}\,\partial G_Y}{\partial e} \tag{11}$$

The derivative of mean income with respect to e is given by $\bar{Y}_j$, the mean income from source j. The derivative of G_Y is given by equation (4). If we substitute these two derivatives into (11) and rearrange, we obtain the following expression:

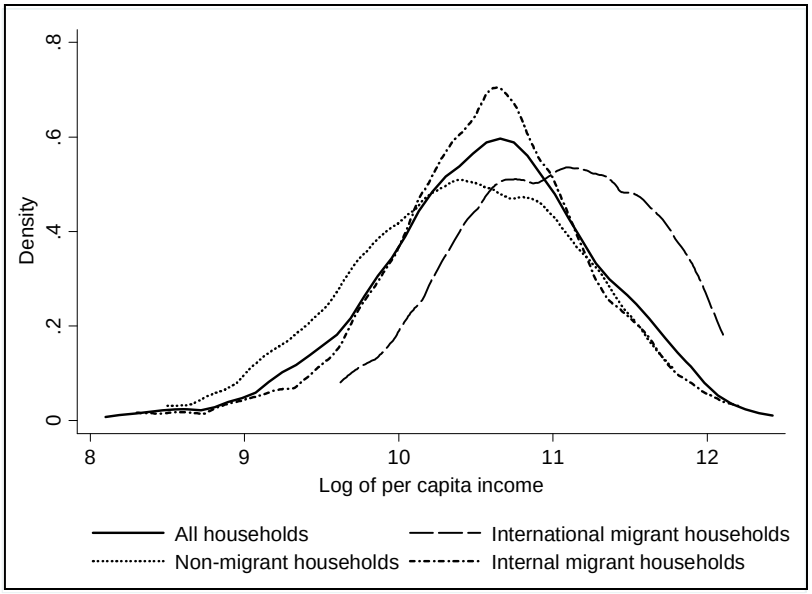
$$\frac{\partial W}{\partial e} = \bar{Y}_j\left(1 - R_j G_j\right) \tag{12}$$

where R_j is the Gini correlation of income from source j with total income and G_j is the Gini index of income source j. Equation (12) states that the effect of a small change in an income source on welfare depends on an income effect given by $\bar{Y}_j$, which is always positive and a distributional effect $\bar{Y}_j R_j G_j$, the sign of which depends on the effect of income from source j on inequality (Stark et al., 1986).

5. FINDINGS

When we are interested in issues of poverty and distribution, income averages such as those in Table 2 conceal as much as they reveal. If it is true that remittances from international migration accrue to the already better-off households, while poor households produce very few long-distance migrants, then the direct effects of these remittances might well be to worsen the distribution of real income. Figure 1 shows the estimated density functions of the logarithm of household per capita income for the different migration regimes as well as for all households.

Figure 1. Kernel density estimates of household income



Notes: kernel = epanechnikov, bandwidth = .2

In Figure 1 the density function for internal migrant households is similar to the general density function. However, the distribution for international migrant households is shifted toward the right, reflecting higher incomes for these households. In contrast, the function for nonmigrant households is shifted toward the left, reflecting lower incomes. For nonmigrant households, almost half of the function lies to the left of the $0.50/day ultra-poverty line, implying that almost half of nonmigrant households live in absolute poverty (Ahmed, Vargas Hill, Smith, Wiesmann, & Frankenberger, 2007).4 Among international migrant households, ultra-poverty is much less prevalent than among households in the other groups. It should also be noted that distributions of international and nonmigrant households are more dispersed compared to the other distributions.

The Gini decomposition in Table 3 reveals interesting differences between remittances from internal and international migration and inequality.

4 $0.50=84 FCFA (PPP 2002) (World Bank, 2005)

Table 3. Gini decompositions of income

	Income share	Gini coefficient for income source	Gini correlation with total income rank	Share in Gini of total income	% change in Gini coefficient
Staple cropping	0.52	0.38	0.73	0.41	-0.11 (-0.20,- 0.03)[a]
Cash cropping	0.10	0.69	0.42	0.08	-0.02 (-0.04, 0.01)
Livestock	0.06	0.88	0.64	0.09	0.04 (0.01, 0.06)
Nonfarm activities	0.20	0.68	0.60	0.23	0.03 (-0.01, 0.08)
Remittances (internal)	0.05	0.86	0.37	0.05	-0.01 (-0.02, 0.02)
Remittances (international)	0.08	0.94	0.57	0.10	0.04 (-0.01, 0.06)
Total income	1.00	0.35		1.00	0

Notes: [a] Bootstrapped percentile confidence intervals in parentheses

The source Gini is highest for international remittances compared to all other income sources. Although a high source Gini does not imply that an income source has an unequalizing effect on total-income inequality, as an income source may be distributed unequally favoring the poor (Taylor et al., 2005), Table 3 also shows that remittances from international migration have a much larger share in total-income inequality compared to remittances from internal migration. The Gini correlation of remittances from internal migration is comparatively low, 0.37, indicating that internal migration remittances favor the poor more than any other income source does. The last column of Table 3 shows that remittances from internal migration have an equalizing effect on the distribution of total rural income. In contrast, a 1 percent increase in international remittances increases income inequality, and more so than increases in any other income source.

Concentration coefficients are calculated by income source based on total income ranking, and on landholdings. Unlike the Gini coefficient, which is always positive, the concentration coefficient may be negative if the correlation between the ranking variable and income from a source is negative and large.

Table 4. Decomposition of the concentration coefficient for income

		Concentration coefficient		Elasticities	
	Income share	Income	Land	Income	Land
Total income	1.00	0.33	0.10	0	0
Staple cropping	0.52	0.27	0.11	-0.10	0.03
Cash cropping	0.10	0.29	0.14	-0.01	0.03
Livestock	0.06	0.55	0.15	0.04	0.02
Nonfarm activities	0.20	0.40	-0.02	0.04	-0.23
Remittances (internal)	0.05	0.33	-0.04	-0.01	-0.07
Remittances (international)	0.08	0.51	0.43	0.04	0.22

Table 4 shows that the concentration coefficient elasticities based on income rank are very similar in magnitude and sign to the Gini coefficient elasticities. However, when households are ranked according to landholdings, concentration coefficients are very different. Coefficients for both nonfarm income and remittances from internal migration are now negative, indicating that the more land is available to the household, the less income it is likely to obtain from nonfarm activities and internal migration. It should also be noted that although most coefficients are much smaller when incomes are ranked according to landholding, the coefficient for remittances from international migration changes only slightly and far exceeds all the others, indicating that the greater the landholdings of a household, the more income it is likely to obtain from international migration, bearing in mind that in the absence of a land market, migration cannot influence landholdings. Both nonfarm income and internal remittances reduce income inequality between households with different landholdings. An increase in remittances from international migration has a strong positive effect on income inequality.

The combined findings of the decomposition of the Gini and the concentration coefficients lend support to the hypothesis of internal migration as a survival strategy in which a household sends out a migrant to an internal destination at a low cost in response to an income shortfall, possibly related to limited landholdings. International migration, instead, appears to be an accumulation strategy enabling already well-off households to further improve their income position relative to other households.

The contrasting findings of the unequalizing versus the equalizing effect on household income of, respectively, international and internal migration are similar to those of Taylor et al. for rural Mexico (2005) for areas with low prevalence of the former and high prevalence of the latter. Long-distance international migration, which is risky and costly, involves so-called pioneer migrants from households at the upper middle or top of the sending area's income distribution so that remittances accrue to already wealthy households, widening income inequalities. Although the idea cannot be tested here, it is possible that as access to migrant labor markets becomes diffused through the growth and elaboration of migrant networks, households at the middle or bottom of the income distribution could gain access to migrant labor markets, dampening or reversing the initial unequalizing effect of remittances.

In order to estimate the effects of changes in migration and remittances on poverty, a poverty line, z, is required. Although a national poverty line for Burkina Faso exists for the year in which the survey was held (82,672 FCFA), applying this line to the data would mean that 93 percent of households would have to be considered poor. As the normal proportion of the population below the poverty line is around 50 percent (International Monetary Fund, 2005), this poverty line does not appear appropriate here. In the absence of any other poverty lines emerging from the literature for Burkina Faso, I opted to use the poverty line for the ultra-poor, those living on less than $0.50 a day.

Table 5. Poverty measures

	α=0	α=1	α=2
All households	0.3318 (0.03)	0.1150 (0.01)	0.0560 (0.01)
Nonmigrant households	0.4557 (0.06)	0.1686 (0.03)	0.0850 (0.02)
Internal migrant households	0.2946 (0.04)	0.0993 (0.02)	0.0479 (0.01)
International migrant households	0.1563 (0.07)	0.0371 (0.02)	0.0134 (0.01)

Notes: N=223
Robust standard errors in parentheses

Table 5 shows that households with international migrants are less poor by all three variants of the FGT poverty measure. Within the group of households with international migrants, less than a fifth are living below the poverty line, compared to about half and a third, respectively, for nonmigrant and internal migrant households. The poverty gap is also smaller for households with international migrants; the average poor household's income falls only 4 percent below the poverty line, compared to 10 and 17

percent for, respectively, internal and nonmigrant households. Finally, poverty is less severe for international migrant households. To test for the robustness of these poverty comparisons, we use stochastic dominance tests for the head-count index of poverty by plotting the cumulative distribution of income for the different migration regimes.

Figure 2. Cumulative distribution function of household income

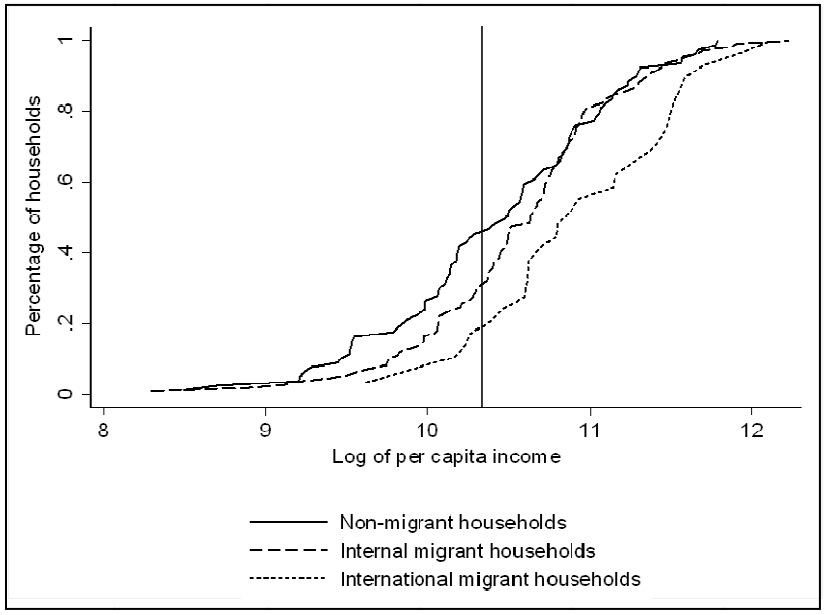


Figure 2 shows that the group ranking as given in Table 5 holds at the selected poverty line (vertical line in figure) and for the largest part of the income distribution. However, it should also be noted that had the poverty line selected been either much higher or much lower, the ranking of nonmigrant versus internal migrant households might have changed. Stochastic dominance of international migrant households holds across the entire income distribution.

Table 6 summarizes the net welfare changes for all households corresponding to a 1 percent increase in respective income sources.

Table 6. Welfare effects of a 1 percent increase in household income from respective sources

	Percentage change in welfare index
Staple cropping	0.19
Cash cropping	0.04
Livestock	0.01
Nonfarm activities	0.05
Remittances (internal)	0.02
Remittances (international)	0.01

Welfare changes vary dramatically across income sources. Similar to the findings of Stark et al. for rural Mexico (1986), the most dramatic improvement in welfare results from a marginal increase in nonremittance income, and in particular in staple cropping. Welfare gains from a marginal increase in remittances from internal migrants are small but slightly larger than those from a marginal increase in remittances from international migration. As shown in Table 2, remittances from international migration are much larger than those from internal migration. The limited impact of an increase in remittances from international migration on village welfare can be attributed to the distributional effect, which weakens the income effect.

6. CONCLUSION

The impact of migration and remittances on inequality, poverty, and social welfare depends on migrant destination as well as on the diffusion of migration opportunities within a community. Using Gini decomposition, we find a negative relationship between internal migration and inequality and a positive relationship between the more costly and risky long-distance international migration and inequality. The concentration coefficient decomposition reveals that remittances from international migration accrue to households with larger landholdings, whereas the opposite holds for remittances from internal migration. International migration thus appears to be an accumulation strategy for already wealthy households, whereas internal migration merely makes up for the income shortfalls of comparatively poor households.

Households with international migrants are found to be much less poor in terms of head-count, depth, and severity measures, suggesting that international migration in particular could play an important role in poverty reduction. However, the limited prevalence of migration among poorer households negatively affects its capacity for poverty alleviation. Results from social welfare analysis shows that welfare gains from an increase in international remittances are small due to the limited distributional effect.

In combination, these findings show that despite the importance of remittance income as an income source, its role in poverty alleviation is limited by the infrequency of international migration among poorer households that face liquidity, risk, and perhaps other constraints to distant labor markets. Households participating in international migration strongly benefit, but beneficiaries do not appear to include the rural poor. The distribution and poverty impacts of international migration are dependent on the diffusion of migration opportunities. Although it has been suggested that migration opportunities will spread to poorer households over time, policymakers may play an important role in facilitating and accelerating this diffusion.

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